

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

1. (currently amended) A membrane-electrode unit for a low-temperature fuel cell, which comprises:

~~Catalyst~~ a catalyst-containing anode gas diffusion layer for a fuel cell comprising a porous substrate material and catalyst particles, wherein the catalyst particles are gas-phase active and produced directly in the porous substrate material from suitable precursor compounds by heat treatment and are distributed uniformly over the entire volume of the gas diffusion layer;

an ionomer membrane;

an anode catalyst layer; and

a cathode catalyst layer.

2. (canceled)

3. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst particles have a mean particle size of from 1 to 100 nm.

4. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst particles comprise a noble metal selected from the group consisting of Pt, Pd, Ru, Rh, Au, Ag, Ir, and Os, or an oxide thereof, or a mixture thereof, or an alloy thereof with a base metal.

5. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst particles are present on the gas diffusion layer in a concentration per unit area of from 0.01 to 100 mg of metal/cm².

6. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the porous substrate material comprises woven carbon fibre fabric, carbon fibre nonwoven, carbon paper, carbon fibre mesh, synthetic fibre mesh coated with conductive material, woven polymer fibre fabric coated with conductive material, glass fibres coated with conductive material, foam coated with conductive material or woven metal fibre fabric or metal wire mesh.

7. (currently amended) ~~Catalyst-coated gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst particles catalyze ~~are gas-phase active and are suitable for~~ the oxidation of carbon monoxide.

8. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst particles catalyze ~~are gas-phase active and are suitable for~~ the conversion of carbon monoxide into methane.

9. (canceled).

10. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 1, wherein the catalyst particles are formed on the porous support material by thermal decomposition of at least one precursor compound.

11. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein the porous support material is treated with at least one precursor compound, is dried and is heat treated, with decomposition of the precursor compound occurring and the catalyst particles being formed and immobilized on the surface of the support material.

12. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein a thermally decomposable metal compound is used as a precursor compound.

13. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein one or more metal compounds selected from the group consisting of nitrates, carbonates, carboxylates, hydroxycarboxylates, acetates, lactates, butanoates, oxalates, formates, resinates and ethylhexanoates are used as precursor compound.

14. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein the thermal decomposition comprises heat treatment which is carried out at a temperature of from 200 to 900°C.

15. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein the thermal decomposition comprises heat treatment which is carried out under a gaseous atmosphere, preferably under air, nitrogen, hydrogen or mixtures thereof.

16. (withdrawn) Process for producing a catalyst-containing gas diffusion layer according to Claim 10, wherein the production is carried out in a continuous process.

17. (currently amended) A fuel cell anode for the removal of carbon monoxide from hydrogen-containing fuel gases comprising: [[the]]
a catalyst-containing gas diffusion layer of Claim 1 which comprises a porous substrate material and catalyst particles, wherein the catalyst particles are gas-phase active and distributed uniformly over the entire volume of the gas diffusion layer ; and
an anode catalyst layer.

18. (canceled).

19. (canceled).

20. (canceled).

21. (currently amended) ~~Catalyst-containing gas diffusion layer~~ A membrane-electrode unit according to Claim 1, wherein the catalyst-containing anode gas diffusion layer further comprises a microlayer wherein the heat treatment is carried out at a temperature of from 200 to 900°C.

22. (new) A membrane-electrode unit according to Claim 21, wherein the microlayer has a thickness from 5 to 100 microns.

23. (new) A membrane-electrode unit according to Claim 21, wherein the microlayer comprises a mixture of a hydrophobic polymer and finely divided carbon black.

24. (new) A membrane-electrode unit according to Claim 23, wherein the hydrophobic polymer is PTFE.

25. (new) A membrane-electrode unit according to Claim 1 further comprising an uncatalyzed gas diffusion layer applied to the cathode catalyst layer.